

MODULE NINE- CASE STUDY: NEXT GENERATION SOLDIER

LESSON ASSIGNMENT

IPPD :

Objectives:

- To

Desired Learning Outcomes: The student should be able to:

- Understand the

Assignments/References:

Chapter 9

WORKBOOK FOR MODULE NINE

CASE STUDY: NEXT GENERATION SOLDIER

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Preparations:

This section has three stages of questions as an exercise. The first stage is below, and the questions should be answered before watching the video. The second stage is comprised of questions to be answered during the video when the announcer states to stop the video player. The third and final stage of questions should be answered at the conclusion of the video. The answers can be found in the back section of your workbook. Complete the questions in the space provided or on the back of the page.

STAGE ONE (Discussion)

- D1. What characteristics are important to capture in an IPPD case study?
- D2. How would you apply the lessons learned in this case study to your own work?
- D3. Is it important to understand the technical objectives of a case study to learn from their lessons? Why or Why Not?

STAGE TWO (During Video)

- Q1. What are the objectives of an Advanced Technology Demonstration program?
- Q2. What are the three themes of IPPD as applied to this project?
- Q3. What were the key features of IPPD, as gathered from the team comments?

- Q4. How much of the system's life cycle cost is determined within the design stage, and what does this stage amount to in the total life-cycle cost.
- Q5. How did this project accomplish Team Training?
- Q6. Define IPT as applied during the Next Generation Soldier Program?
- Q7. What are two tips for empowerment of teams within the government team?
- Q8. Describe the "Balancing Act" of running an Integrated Product Team?
- Q9. List the two principles for Integrated Product Teams that were stressed during the Next Generation Soldier program?
- Q10. What condition caused many of the challenges for the working IPTs?
- Q11. A good team with close working relationships can cause what problem?

STAGE THREE (End of Video)

- Q12. Since consensus takes longer, what are the benefits of consensus decisions?
- Q13. How long did the Next Generation Soldier Program take to form working Integrated Product Teams?
- Q14. Which of the seven IPT leadership requirements do *you* value the most, and why?
- Q15. How did the Next Generation Soldier determine the greatest cost savings?
- Q16. Why track and report many of the low-level technical metrics to the management team?

Q17. Explain the difference between a six sigma statistical measure, and the six sigma quality process.

Q18. What is the effect of an incremental development approach as applied during Next Generation Soldier Program?

Q19. What single question does modeling and simulation attempt to answer?

Q20. What non-product was transitioned as part of this ATD?

ANSWERS for Module Nine

CASE STUDY: NEXT GENERATION SOLDIER

Q1. What are the objectives of an Advanced Technology Demonstration program?

A1. Make Product suitable as fieldable prototype.
 Manufacture system with production equipment.
 Test in real and simulated environment for user feedback.
 Define product and process capabilities to include producibility goals, life cycle cost, and reliability and maintainability performance.
 Transfer design trade studies and evaluation.

Q2. List the three major themes of IPPD as applied to this project?

A2. Communication.
 Empowerment.
 Teamwork.

Q3. What were the key features of IPPD, as gathered from the team comments?

A3. Early Buy-in,
 Congruency from the start,
 Life-cycle emphasis, and
 Early risk identification

Q4. How much of the system's life cycle cost is determined within the design stage, and what does this stage amount to in the total life-cycle cost.

A4. The design stage uses approximately 5% of the life cycle cost, and determines about 70% of the life-cycle cost.

Q5. How did this project accomplish Team Training?

A5. Entire team was trained together for two days in IPPD tools, including the Six Sigma Process and Quality Function Deployment. Team members that could not be trained at the first session were required to attend the training course before becoming involved in the project. Additional training about the system deployment was accomplished in the field by

the intended users of the product. The IPT members attended a live fire training exercise from the user (customer) to gain knowledge about desired performance and squad procedures.

- Q6. Define IPT as applied during the Next Generation Soldier Program?
- A6. A team of qualified personnel focused on a definable product, empowered and authorized to make commitments for the team. Members represent all functional disciplines, and make better decisions through effective vertical and horizontal communication.
- Q7. What are two tips for empowerment of teams within the government team?
- A7. Make each government team leader a Technical Contract Monitor (COTR), and give each team budget responsibility. The result of these was real-time decisions being made at the lowest possible level. Therefore, only system-level problems or budget changes were brought up to the higher levels, increasing effectiveness of the management team.
- Q8. Describe the “Balancing Act” of running an Integrated Product Team?
- A8. The right amount and mix of team members. The entire team must be informed of the team vision and system design, but too many team members at all times create inefficiencies. Choose which members are needed at particular times and be sure that everyone understands their role.
- Q9. List the two principles for Integrated Product Teams that were stressed during the Next Generation Soldier program.?
- A9. Open discussions with no secrets and reasoned disagreement. Mr. Snow stresses that generating trust among the team members is a critical element for effective open discussion, but that each member must be able to participate in a reasonable manner during these discussions. A leader must stress that everyone is an important member of the team with different experiences, so disagreement is productive. However, disagreement and the resulting discussion must be based upon mutual respect and directed towards solving the problem

Q10. What condition caused many of the challenges for the working IPTs?

A10. The distributed nature of the team increased development time for IPT's, required a large communications infrastructure, and required virtual meetings.

Q11. A good team with close working relationships can cause what problem?

A11. Informal team decisions can lead to lack of documentation, later resulting in a loss of trade studies, decision rationales, and alternatives information. Thus, the informality of team decisions still requires a level of formalization for control and knowledge capture.

STAGE TWO

Q12. Since consensus takes longer, what are the benefits of consensus decisions?

A12. Getting consensus results in better decisions that save time later. Implementation of the decisions is smoother, since you have full support of the team. Everyone understands the rationale for the decision, and time is saved by not re-visiting the alternatives. Better decisions mean that more issues remain closed.

Q13. How long did the Next Generation Soldier Program take to form working Integrated Product Teams?

A13. It took six months before the IPTs were formed and running well.

Q14. Which of the seven IPT leadership requirements do *you* value the most, and why?

A14. This answer is dependent upon your experience, The seven requirements are:

- Group process skills
- Leadership of empowerment for team members
- Conflict resolution skills
- Ability to orchestrate communication
- Facilitate and support team decisions

Create a team identity
Foresee and influence change

Q15. How did the Next Generation Soldier Program determine the greatest cost savings?

A15. They used Cost As an Independent Variable (CAIV) after tracking the component cost. The DoD CAIV initiative states: " Unless reliability or performance is an absolute requirement, look at changing the design or relaxing requirements for total system affordability" The requirement for the CCD chip was changed to dramatically reduce cost, but this required a change in system performance.

Q16. Why track and report many of the low-level technical metrics to the management team?

A16. The lower level technical metrics can predict a change in cost that might not otherwise be evident at the top level. For example, an increase in lines of code can mean higher maintenance costs, but also might require more expensive equipment. This spiraling technology creep can be quickly spotted and evaluated by tracking metrics and using the CAIV initiative.

Q17. Explain the difference between a six sigma statistical measure, and the six sigma quality process.

A17. The six sigma statistical measure is a defect measurement, usually determined by inspection. The six sigma quality process is a methodology to understand the capabilities of the processes in order to prevent defects during the design stage. Defect prevention is a more effective method for variation reduction.

Q18. What is the effect of an incremental development approach as applied during Next Generation Soldier Program?

A18. Incremental approach eliminates the "big bang" approach of integrating major system elements at the end. Instead, it allows feedback from the users during design and development, allowing changes to be made affordably. Incremental approach reduces risk and time by allowing feedback from the user to the development team.

Q19. What single question does modeling and simulation attempt to answer?

A19. Does the system improve force effectiveness?

Q20. What non-product was transitioned as part of this ATD?

A20. The Quality Function Deployment Matrices, trade studies, and analysis. This information allows the acquisition team to continue development instead of starting over or losing corporate knowledge. The direct effect of transitioning these items is to reduce the time required to field the system.